

Nineteenth Street Bridge
Nineteenth Street over South Platte River
Denver
Denver County
Colorado

HAER No. CO-59

HAER
COLO,
16-DENV,
58-

REDUCED COPIES OF MEASURED DRAWINGS

Historic American Engineering Record
National Park Service
Department of the Interior
Washington, DC 20013-7127

ADDENDUM TO
NINETEENTH STREET BRIDGE
at Nineteenth Street
Denver
Denver County
Colorado

HAER No. CO-59

HAER
COLO
16-DENV,
58-

PHOTOGRAPHS
WRITTEN HISTORICAL AND DESCRIPTIVE DATA
REDUCED COPIES OF MEASURED DRAWINGS

Historic American Engineering Record
National Park Service
Rocky Mountain Regional Office
Department of the Interior
P.O. Box 25287
Denver, Colorado 80225

HAER
COLO
16-3E1WV
58-

HISTORIC AMERICAN ENGINEERING RECORD

ADDENDUM TO NINETEENTH STREET BRIDGE

I. INTRODUCTION

Location: Spanning the South Platte River at Nineteenth Street, Denver, Colorado

Quad: Arvada

UTM: 13/4400900/499705

Date of Construction: 1888 (Modified in 1965)

Present Owner: City of Denver
City Hall
Denver, Colorado

Present Use: Pedestrian and bicycle bridge, new vehicular bridge to be built downstream of present bridge

Significance: Completed in 1888, the Nineteenth Street Bridge is the oldest surviving wrought iron bridge and oldest vehicular bridge still in use within the state of Colorado. Although a once common truss type, the two span Pratt through bridge is distinguished by unusual cast-iron ornamentation.

Historian: Lorna Sue Lange
National Park Service
Rocky Mountain Region
September, 1990

II. HISTORY

A. INTRODUCTION

The discovery of gold on the South Platte River by William Green Russell's group of prospectors in 1858 precipitated a rush to the Rocky Mountains and the Front Range of Colorado. At the confluences of the South Platte River and Cherry Creek, a collection of towns including Denver, Auraria, and Highlands were soon platted. The bustling towns became the major supply centers for prospectors bound for the gold and silver fields of the mountains.

Between 1859 and 1864, a web of wooden bridges spanned the South Platte River and Cherry Creek, linking the towns. A series of floods between 1864 and 1885 on the South Platte River and Cherry Creek created havoc along the riverways, destroying the bridges in their paths. The flood waters "first converted them [bridges] into dams which threw the water to each side in great rivers before they gave way. Within two hours each bridge in the city was made a flooding dam and then successively carried away."¹

B. NINETEENTH STREET BRIDGE

Volga-German immigrants first settled in Highlands near the Nineteenth Street Bridge area. They chose the location "because they found it a spot where the river was accessible for them to do their laundry."² Across the river were the railroad yards and switching yards and Denver's warehouse/commercial district. Denver residents petitioned the Arapahoe County Commissioners for a bridge at 19th Street on March 1, 1875.³ In June of 1875, the Commissioners discussed the ordinance for a bridge, which Commissioner J. Williams opposed on the grounds that the nine railroad tracks and the switching yards just southeast of the bridge site made travel precarious.⁴ A flood in July of 1875 delayed action on a new bridge. However, the city fathers decided to replace the bridges damaged by the flood instead of building a new one.

By September, discussion of a bridge at Nineteenth Street had generated enough local support to attract "Letters to the Editor" in the Rocky Mountain News. According to the newspaper, the City was "proceeding to erect the bridge before obtaining the right-of-way for extension of the street." Furthermore, the Commissioners had not obtained the right-of-way from the property owners, the Hallock Brothers, to extend Nineteenth Street from Denver across the railroad tracks to the southeast bank of the South Platte River.⁵ It was not until October that the City began negotiations to discuss acquiring the right-of-way. The Hallock Brothers declined the City's offer and demanded a large fee in damages. The suit was settled in court on December 1, 1875. The judgment granted the right-of-way to the City for a damage award of \$550 payable to the Hallock Brothers.⁶ By October 22, 1876 construction of a wooden bridge was well underway and near completion with 5 piles (piers) and 23 bents (structural members for strengthening a bridge transversely) in place.⁷

This timber bridge had a rather brief and interesting history. By 1877, the bridge was in need of repair, and the City Council voted to repair the approaches and to straighten the bridge.⁸ No immediate action was taken. The following year, however, a small child fell into the river and drowned while crossing the bridge. Citizens blamed the accident on the city for not repairing the bridge.⁹ Two months later, on May 23, 1878, a flood swept through Denver, demolishing most of the bridges along the South Platte River. Miraculously, the Nineteenth Street Bridge survived the flood with only minor damage.¹⁰ However, a flood in 1884 swept away several piers, prompting the City to close the bridge to through traffic.¹¹

Presumably the wooden bridge remained closed until 1888 when the structure was replaced with a bridge built by the Missouri Valley Bridge and Iron Works.¹² The repeated destruction of wooden bridges by floods, and the availability of pre-fabricated, inexpensive and readily available metal bridges, enabled the City to start replacing their wooden bridges with more substantial wrought iron bridges between October 1887 and July 1888.¹³ The first iron bridge was built at 23rd Street in 1887, and most other iron bridges built in Denver followed between October 1887 and July 1888.¹⁴

The Missouri Valley Bridge and Iron Works had contracted to build a bridge on August 26, 1887. Plans for the bridge included 120 feet of iron at a cost of \$8,250.¹⁵ Since the bridge was the only one built by the Missouri Valley Bridge and Iron Works between 1887-1888, it can be assumed that this was the contract for the Nineteenth Street Bridge. From City plans, it can be surmised that the abutments and piers were designed and built by the City Engineer, Harvey C. Lowrie, during the summer of 1887. The Missouri Valley Bridge and Iron Company designed the superstructure in August of 1887.¹⁶

City plans to rebuild the 19th Street Bridge as a viaduct emerged in 1898, but were subsequently defeated in June of 1904.¹⁷ The bridge spanned only the South Platte River, while the plan for the viaduct was to span both the river and the railroad tracks of the switching yard.

C. LOCATION

Upon completion, the Nineteenth Street Bridge spanned the South Platte River, connecting residential northwest Denver (old Highlands) with the railyards and warehouse district of Denver. The bridge is approximately 500 feet southeast of Interstate Highway 25 (known as the Valley Highway through Denver) at Nineteenth Street. Approximately 200 feet on either side of the bridge are sets of railroad tracks (of Colorado Southern, Denver Rio Grande Western, Burlington Northern, and Union Pacific Railroads) which lead to the railhead and switching yards. Nineteenth Street was originally called "K" Street and only became Nineteenth Street in 1873 when Auraria and Denver City were merged to form Denver.¹⁸ The bridge, built two years after the renaming of the streets, was named Nineteenth Street Bridge. With the building of the first timber bridge in 1875, Nineteenth Street was extended to connect Denver City to Highlands.¹⁹

III. BRIDGE

A. DESCRIPTION

The Nineteenth Street Bridge is a two-span, through Pratt truss of five panels each with horizontal top cords and inclined end posts. Each span is 94 feet 5 inches in length with three center panels 19 feet 11 5/6 inches and the outer panels 17 feet 3 1/2 inches in length. The total length of the bridge is 204 feet 3 3/8 inches. Pin connections are used to connect the major structural members. The bridge consists of wrought iron structural members with cast iron decorative elements. The upper struts are unusually deep I-beams with a height from strut to deck of 24 feet 6 1/2 inches. The deck originally consisted of timber, but was replaced in 1965 with asphalt over corrugated steel. The roadway is 22 feet 5 1/2 inches wide. Both sides of the bridge have cantilevered sidewalks with cast iron newels and latticing. The south sidewalk is a pedestrian walkway with timber decking and measures approximately 8 feet 6 inches. The north sidewalk measures approximately 7 feet 5 inches, supports utility pipe lines, and has no decking. The entrance portals are latticed with decorative cresting and finals. A plaque located on the portals bears the inscription of the builder.²⁰ The substructure consists of solid stone ashlar piers measuring 15 feet and 1 1/2 inches and stepped stone wingwalls. Original plans obtained by the City of Denver show the foundation to be a grillage (a network of crosstimmer serving as a foundation on unstable soil).

The Pratt truss design of the Nineteenth Street Bridge was one of the most common types of nineteenth century roadway trusses. The bridge is among the earliest, if not the first, vehicular iron bridges built in Colorado, and is the only one still in public use that is relatively well-preserved and essentially unaltered.

B. MODIFICATIONS AND FUTURE USE

Since its completion, the Nineteenth Street Bridge has remained basically unaltered with only two modifications. The flooding of the South Platte River Valley in 1961 necessitated replacement of the timber decking with corrugated steel. A few hinges were replaced after the flood of 1965 bent some connections.²¹ On December 16, 1986, after 99 years of service, the bridge was closed to vehicle traffic for safety reasons and restricted to foot and bicycle traffic.²² Operation Engineer for the City of Denver, Jim Hammond, stated, "...the bridge has become the victim of wear and tear and salt that [was] used to melt snow and ice..." The bridge deck suffers "serious chloride contamination that spread to metal below" causing deterioration to the extent that the bridge cannot withstand heavy loads. The City of Denver has plans to rehabilitate the bridge for pedestrian traffic in the near future so that future generations will be able to use the bridge. Due to the high cost of relocating the bridge, it will stay in its present location.

A new vehicular bridge, adjacent to the historical bridge, is in the planning stages. The proposed bridge will be downstream (northeast) of the present bridge and has been tentatively christened the Nineteen and A-Half Street Bridge.²³

IV. BIOGRAPHICAL MATERIAL

A. MISSOURI VALLEY BRIDGE AND IRON COMPANY

Realizing the practicality of manufacturing and selling bridges closer to the source rather than from eastern firms, Edwin I. Farnsworth started the Missouri Valley Bridge and Iron Works in Leavenworth, Kansas in 1874 with D.W. Eaves. Four years later in 1878, the firm was taken over by an engineer A. J. Tullock, and the banking firm of Insley and Shire under the name of Missouri Valley Bridge and Iron Works, A. J. Tullock and Company Proprietors. The company was known more for railroad bridge construction than for roadway bridges. The Missouri Valley Bridge and Iron Works built bridges for the principal rail lines of the West and Southwest, including the Mexican Central (National Lines of Mexico) and the original Galveston Bay Bridge, Texas. Upon A. J. Tullock's death in 1904, the Missouri Valley Bridge and Iron Works became Missouri Valley and Iron Company.

Closely tied with the Missouri Valley Bridge and Iron Works were three other bridge building firms: Leavenworth Bridge and Iron Company, J.B. Tearney and Company, and Rohr and Tearney. The four companies worked in conjunction on projects and contracts. Generally, all four companies would bid on a contract. If the project were awarded to one company, all four would divide the contract. Leavenworth Bridge was the primary bidding company while J.B. Tearney and Company focused on construction. Missouri Valley Bridge and Iron Works generally built bridges of 300 feet or longer while the others three companies constructed bridges under 300 feet.²⁴

V. ENDNOTES

1. Jerome Constant Smiley, History of Denver: With Outlines of the Earlier History of the Rocky Mountain Country. (Denver: Old Americana Publishing Company, 1978), page 463.
2. Ruth Eloise Wiberg, Rediscovering Northwest Denver: Its History, Its People, Its Landmarks. (Boulder, Colorado: Pruett Publishing Company, 1976), 22.
3. Arapahoe County Commissioners' Minutes: 1 March 1875 (Book 1, page 14).
4. Arapahoe County Commissioners' Minutes: 7 June 1875 (Book 1, page 68) and "The City Council," Rocky Mountain News, 11 June 1875, column 2, page 4.
5. "The Extravagance of the City Council" letter to the editor, Rocky Mountain News, 7 September 1875, column 4, page 4 and "The Nineteenth Street Improvements" letter to the editor, Rocky Mountain News September 1875, column 2, page 4
6. "Council News," Rocky Mountain News, 9 October 1875, column 3, page 4 and "Council Proceedings," Rocky Mountain News, 1 December 1875, column 1, page 4).
7. "City and Vicinity: The 19th Street Bridge," Rocky Mountain News, 22 October 1875, column 3, page 4.
8. "Council Proceedings," Rocky Mountain News, 25 April 1877, column 2, page 4.
9. "Little Child Falls from Nineteenth Street Bridge into the Platte River," Rocky Mountain News, 26 March 1878, column 6, page 4.
10. "The Turbulent Tide," Rocky Mountain News, 23 May 1878, column 3, page 4.
11. "Travel Impeded," Rocky Mountain News, 2 June 1884, column 2, page 7; "The 19th Street Bridge," Rocky Mountain News, 11 June 1884, column 4, page 8, and "Nineteenth Street Bridge," Rocky Mountain News, 13 June 1884, column 3, page 3.
12. Builder's plate on bridge portal: "Built 1888 by Mo. Valley Bridge & Iron Works Leavenworth Kansas A.J. Tullock & Company Proprietors."
13. Arapahoe County Commissioners Minutes: 25 October 1887 (Book 8, page 36), 16 November 1887 (Book 8, page 46), 13 December 1887 (Book 8, page 72), 9 March 1888 (Book 8, page 147), 14 June 1888 (Book 8, page 219, 9 July 1888 (Book 8, page 230), 30 July 1888 (Book 8, page 243), State Archives, Denver, Colorado.
14. Clayton Fraser, Colorado Bridge Survey: An Inventory For the Colorado Department of Highways Project No. BRO-000S (7), (Denver, Colorado: Colorado Department of Transportation), 18 and Arapahoe County Commissioners' Minutes: October to July.

15. "Missouri Valley Bridge and Iron Works, Contract 185," 26 August 1887, Historic Preservation Department, Kansas State Historical Society (this contract gives relatively little information besides the date, location of Denver, the amount of iron and the cost).
16. "19th Street Bridge plans," Design Engineer Division, Department of Public Works, City and County of Denver.
17. "Viaduct Plans," Denver Republican, 13 December 1898, column 4, page 6 and "New Viaduct Much Needed," The Denver Times, 14 May 1901, column 1, page 4 and "Denver Defeated in Viaduct Suit," Denver Republican, 14 June 1904, column 6, page 1.
18. Jerome Smiley, The History of Denver, (Denver: Denver Times Publishing Company, 1901), page 444 and Rocky Mountain News, 2 March 1873, page 4, column 2.
19. "The Extravagance of the City Council," Rocky Mountain News, 7 September 1875, page 4, column 4.
20. Builder's plate on bridge portal: "Built 1888 by Mo. Valley Bridge & Iron Works Leavenworth Kansas A.J. Tullock & Company Proprietors."
21. "Survey Report, Project BRM 1441 (1), 19th Street Bridge," Colorado Department of Highways, 2 December 1987. (Typewritten) and "19th Street Bridge Plans," Design Engineer Division, Department of Public Works, City and County of Denver. Plans were done in 1961 and 1965 for both replacements.
22. Jodi Enda, "After 99 years, Bridge to get Lighter Load," Rocky Mountain News, 16 December 1986, page 10.
23. "Survey Report, Project BRM 1441 (1), 19th Street Bridge."
24. "Missouri Valley Bridge and Iron Company," Historic Preservation Department Files, Kansas State Historical Society, and Interview with Larry Jochims, Historian, Historic Preservation Department, Kansas State Historical Society, 12 September 1990.

VI. BIBLIOGRAPHY

A. BOOKS

Fraser, Clayton. Colorado Bridge Survey: An Inventory For the Colorado Department of Highways Project No. BRO-000S(7). Denver: Colorado Department of Transportation.

Herbst, Rebecca, and Vicki Rottman, ed. Historic Bridges of Colorado. Denver: Colorado Department of Highways, 1986.

Plowden, David. Bridges: The Spans of North America. New York: The Viking Press, 1974.

Robinson, E., George E. Ryan, and R.H. Pidgeon. Atlas of the City of Denver. Denver: E. Robinson, 1887.

Smiley, Jerome Constant. History of Denver: With Outlines of the Earlier History of the Rocky Mountain Country. Denver: Old Americana Publishing Company, 1978.

Wiberg, Ruth Eloise. Rediscovering Northwest Denver: Its History, Its People, Its Landmarks. Boulder, Colorado: Pruett Publishing Company, 1976.

B. PERIODICALS

Bartlett, F.L. "History of Road Building in Colorado," Colorado Highways V (March 1926): 4-6.

"Denver Has \$1,500,000 Invested in Bridges and Viaducts," Denver Municipal Facts, vol. 1, No. 41 (27 November 1909): 3-5, 15.

Monell, T.W. "History of the Highway Department," Colorado Highways III (January 1924): 3-4.

"Trouble Bridges of Denver," Rocky Mountain Motorists, (May 1983) 12-14.

C. NEWSPAPERS

Denver Republican

"Viaduct Plans Discussed." 13 December 1898, column 4, page 6.

"Denver Defeated in Viaduct Suit." 14 June 1904, column 6, page 1.

Denver Times

"Twenty Years Ago Today." 15 August 1898, page 4.

"New Viaduct Much Needed." 14 May 1901, column 1, page 4.

Rocky Mountain News

"The New Streets." 2 March 1873, column 2, page 4.

"The City Council." 11 June 1875, column 2, page 4.

"The Extravagance of the City Council," Letter to the Editor. 7 September 1875, column 4, page 4.

"The Nineteenth Street Improvements." Letter to the Editor. 9 September 1875, column 2, page 4.

"Council Notes." 9 October 1875, column 3, page 4.

"City and Vicinity: The 19th Street Bridge." 22 October 1875, column 3, page 4.

"City and Vicinity." 1 December 1875, column 1, page 4.

"Council Proceedings." 25 April 1877, column 2, page 4.

"Little Child Falls from Nineteenth Street Bridge into the Platte River." 26 March 1878, column 6, page 4.

"The Turbulent Tide." 23 May 1878, column 4, page 3.

2 July 1880, column 2, page 8.

17 August 1883, column 1, page 5.

"Travel Impeded." 2 June 1884, column 2, page 7.

"The 19th Street Bridge." 11 June 1884, column 4, page 8.

"Nineteenth Street Bridge." 13 June 1884, column 3, page 3.

"Features Now." 23 July 1978, page 2.

Enda, Jodi, "After 99 Years, Bridge to Get Lighter Load." 16 December 1986, page 10.

D. PAMPHLETS, REPORTS, MISCELLANEOUS

Arapahoe County Commissioners' Minutes: 1 March 1875 (Book 1, page 14), 7 June 1875 (Book 1, page 68), These minutes are the only ones that pertain to the 19th Street Bridge.

Arapahoe County Commissioners' Minutes: 25 October 1887 (Book 8, page 36), 16 November 1887 (Book 8, page 46), 13 December 1887 (Book 8, page 72), 9 March 1888 (Book 8, page 147), 14 June 1888 (Book 8, page 219), 9 July 1888 (Book 8, page 230), 30 July 1888 (Book 8, page 243), State Archives, Denver, Colorado. These minutes pertain to iron bridge building in Denver.

Comp, T. Allan and Donald Jackson. "Bridge Truss Types: A Guide to Dating and Identifying," Technical Leaflet 95, Nashville, Tennessee: American Association for State and Local History, 1977.

Contract 185, 26 August 1887, on file at Historic Preservation Department, Kansas State Historical Society, Topeka.

Darnell, Victor C. Directory of American Bridge Building Companies: 1840-1900, No. 4. Washington, D.C.: Society for Industrial Archeology, 1984.

Jochim, Larry. Historic Preservation Department, Kansas State Historical Society, Topeka, Kansas. Telephone Interview, 12 September 1990.

Knapp, George, P.E. Design Engineering Division, Department of Public Works, City and County of Denver. Interview, 28 September 1990.

"Missouri Valley Bridge and Iron Company." Historic Preservation Department Files, Kansas State Historical Society, Topeka.

"The 19th Street Bridge, file." Design Engineering Division, Department of Public Works, City and County of Denver.

"The 19th Street Bridge Plans." Design Engineering Division, Department of Public Works, City and County of Denver.

"Survey Report, Project BRM 1441(1) 19th Street Bridge, Colorado Department of Highways, 2 December 1987 (Typewritten).